Amendments to the Claims:

1-39. (Cancelled)

40. (New) A molecular switch, comprising:

(a) a first nucleic acid construct, having

(i) a DNA response element for a transcriptional regulatory protein, operably linked to a first promoter;

(ii) a non-native compound binding sequence which is the same as, overlapping, or adjacent to said DNA response element, for binding to a DNA binding compound;

(iii) a transgene under the control of said first promoter; and

(b) a DNA binding compound;

wherein said DNA binding compound, when bound to said binding sequence, is effective to modulate binding of said transcriptional regulatory protein to said DNA response element.

41. (New) The molecular switch of claim 40, wherein said DNA binding compound, when bound to said binding sequence, is effective to inhibit binding of said transcriptional regulatory protein to said DNA response element.

42. (New) The molecular switch according to claim 40, further comprising:

(c) a second nucleic acid construct, having the coding sequence for said transcriptional regulatory protein operably linked to a second promoter.

43. (New) The molecular switch according to claim 42, wherein said first and second nucleic acid constructs are included in a single vector.

44. (New) The molecular switch according to claim 42, having a first vector including said first nucleic acid construct and a second vector including said second nucleic acid construct.

45. (New) The molecular switch according to claim 40, wherein said first promoter is a regulatable promoter, and said first nucleic acid construct further comprises the coding sequence for said transcriptional regulatory protein, under the control of said promoter.

46. (New) The molecular switch according to claim 45, wherein the coding sequence for said transcriptional regulatory protein is operably linked to said promoter.

47. (New) The molecular switch according to claim 40, wherein said compound binding sequence has from about 8 to 20 nucleotides.

48. (New) The molecular switch according to claim 40, wherein said nucleic acid construct has from 1 to 12 compound binding sequences.

49. (New) The molecular switch according to claim 40, wherein said nucleic acid construct has from 1 to 12 tandem repeated transcriptional regulatory protein DNA response elements.

50. (New) A cell comprising the molecular switch of claim 40.

51. (New) A cell according to claim 50, wherein said cell is selected from the group consisting of a plant cell, an animal cell, a yeast cell, a bacterial cell, an insect cell and an archea cell.

52. (New) A method of producing a cell having a molecular switch for modulating gene expression, said method comprising:

(i) transforming said cell with a nucleic acid construct having a DNA response element which binds a transcriptional regulatory protein operably linked to a promoter, a non-native compound-binding sequence which is the same as, overlapping, or adjacent to said DNA response element for binding to a DNA binding compound, a transgene under the control of the promoter; and

(ii) exposing said transformed cell to a DNA binding compound,

wherein binding of the DNA binding compound to said compound binding sequence is effective to inhibit binding of a transcriptional regulatory protein to the DNA response element, thereby derepressing or deactivating expression of the gene, where the transcriptional regulatory protein is a repressor or activator protein, respectively.

53. (New) The method of claim 52, comprising:

(iii) further transforming said cell with a second nucleic acid construct having a nucleic acid sequence encoding a transcriptional regulatory protein operably linked to a second promoter.

54. (New) The molecular switch according to claim 40, wherein said transcriptional regulatory protein has a DNA binding sequence selected from the group consisting of a UL9 sequence, an NF-κB sequence, a GAL4 sequence, a ZFHD1 sequence, a LacR sequence, a TetR sequence, a LexA sequence, and the ecdysone receptor binding sequence.

55. (New) The cell according to claim 50, wherein said transcriptional regulatory protein has a DNA binding sequence selected from the group consisting of a UL9 sequence, an NF-κB sequence, a GAL4 sequence, a ZFHD1 sequence, a LacR sequence, a TetR sequence, a LexA sequence, and the ecdysone receptor binding sequence.

56. (New) The molecular switch according to claim 40, wherein said transcriptional regulatory protein has an activator domain selected from the group consisting of VP16, NF-KB, Gal4, TFE3, ITF1, Oct-1, Sp1, Oct-2, NFY-A, ITF2, c-myc, and CTF.

57. (New) The cell according to claim 50, wherein said transcriptional regulatory protein has an activator domain selected from the group consisting of VP16, NF-KB, Gal4, TFE3, ITF1, Oct-1, Sp1, Oct-2, NFY-A, ITF2, c-myc, and CTF.

58. (New) The molecular switch according to claim 40, wherein said transcriptional regulatory protein has a repressor domain selected from the group consisting of Kruppel (KRAB), kox-1, TetR, even-skipped, LacR, engrailed, hairy (HES), Groucho (TLE), RING1, SSB16, SSB24, Tup1, Nab1, AREB, E4BP4, HoxA7, EBNA3, Mad and v-erbA.

59. (New) The cell according to claim 50, wherein said transcriptional regulatory protein has a repressor domain selected from the group consisting of Kruppel (KRAB), kox-1, TetR, even-skipped, LacR, engrailed, hairy (HES), Groucho(TLE), RING1, SSB16, SSB24, Tup1, Nab1, AREB, E4BP4, HoxA7, EBNA3, Mad and v-erbA.